

## PHACS SMARTT

### Participant Summary

**Title:** Prenatal exposure to antiretrovirals among HIV-exposed but uninfected children: Surveillance Monitoring for ART Toxicities (SMARTT) Study

**Authors:** Griner RG, Williams PL, Read JS, Seage GR, Crain MC, Yogev R, Hazra R, Rich KC for the PHACS team

**Background:** Antiretroviral medications (ARVs) are used during pregnancy to prevent a child from getting HIV at birth and to treat a mother's HIV infection. However, ARVs used by the mothers might cause other problems for the child. This report describes how the use of ARVs during pregnancy has changed over time for mothers of children in SMARTT.

**Methods:** We reviewed ARVs taken by during pregnancy for 1621 mothers in SMARTT. We divided the ARVs into groups that fight HIV in a similar way, called families. These are 1) reverse transcriptase inhibitors (NRTIs), 2) non-nucleoside reverse transcriptase inhibitors (NNRTIs), and 3) protease inhibitors (PIs). We grouped the mother's treatments as:

- none
- zidovudine (ZDV) alone
- two NRTIs
- combination ARV regimens (three or more drugs from two or more ARV families) also called highly active antiretroviral therapy (HAART); and,
- other

We used a mathematical model to find factors linked to HAART use.

**Results:** . The percentage of mothers taking HAART during pregnancy increased from 21% in 1997 to 91% in 2009. The use of ZDV alone decreased from 58% in 1997 to almost 0% from 2003-2009. In 1997, 8.3% of mothers did not take any ARVs during pregnancy. From 2007-2009, 2.0% of mothers did not take ARVs during pregnancy. 99% of children born in 2009 were exposed to ARVs in the NRTI family during pregnancy. The most common of these NRTIs were ZDV (70%), lamivudine (69%), tenofovir (42%), emtricitabine (40%), and abacavir (22%). The percentage of mothers receiving ARVs in the PI family increased from 19% in 1997 to 87% in 2009. The most common PIs were ritonavir (81%), lopinavir (57%) and atazanavir (22%). The percentage of mothers receiving ARVs in the non-NRTI class fell from 33% in 2003 to 11% in 2009.

Mothers with a higher viral load were 70% more likely to take HAART. Mothers of children born after 2002 were 90% more likely to take HAART. Race/ethnicity and substance use during pregnancy were not associated with whether a mother received HAART.

**Conclusions:** The ARVs used during pregnancy have changed over time. The percentage of mothers receiving HAART during pregnancy has risen but is not 100%. Mothers with higher viral loads are more likely to receive HAART. Studies like SMARTT should follow children whose mothers received ARVs during pregnancy to check for possible long-term problems due to these drugs.

**Support:** This study was supported by NICHD with co-funding from NIDA, NIAID, NIMH, NINDS, NIDCD, NHLBI, and NIAAA.